

Post-Amputation Orthopedic Disease in Canine Amputees: Preliminary Results of an Online Survey

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**Colorado
State**
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Amputation not uncommon
(CSU 2000-2013: ~ 1,200 limb amputations)

Amputees have changes in gait

(Kirpensteijn et al. 2000; Hogg 2011; Jarvis et al 2013; Hogg et al. 2013)



But... do amputees have subsequent clinically significant orthopedic disease?

And THEN what?



What We Already Know (not much)

- 2 case reports
 - Pelvic limb amputee and FHNO – successful (Carpenter et al. 1996)
 - Thoracic limb amputee and shoulder luxation – successful and unsuccessful (Burton and Owen 2007)
- 1 case series
 - 9 pelvic limb amputees and THA – successful and unsuccessful (Preston et al. 1999)

“What we already know” = NOT MUCH!

What does this mean?



What We WANT to Know (lots more)

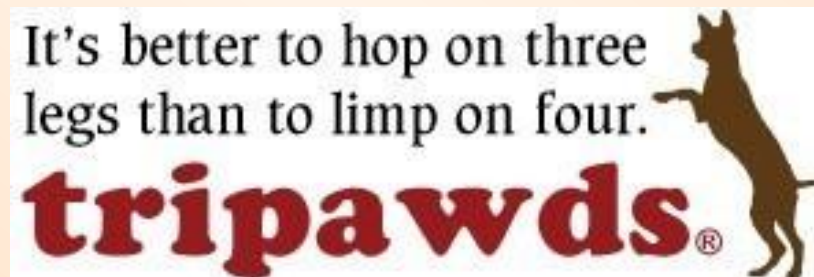
Occurrence of post-amputation
orthopedic disorders; surgical
and/or medical treatment selection;
surgical viability; subjective and
objective outcome



Initial survey to gather respondents posted
(www.surveymonkey.com) via Tripawds.com

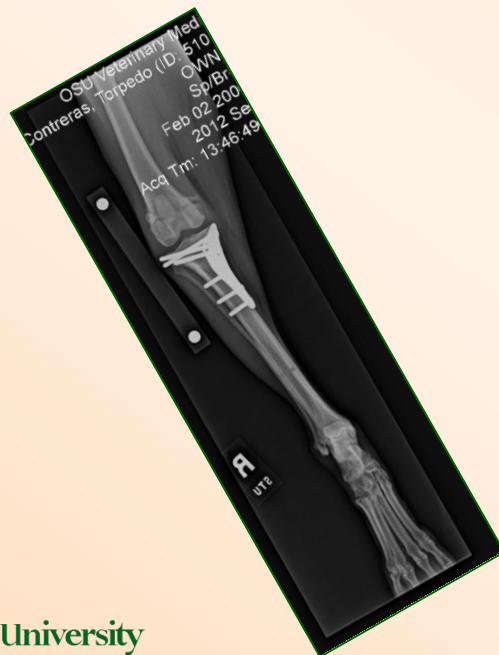
8 questions

09/26/13 – 11/10/13 (46 days)



Follow-up email questions to those with ortho
dz (n=48/125):

For those who underwent surgery (n=19/48)
requested medical records and radiographs



Results: Ortho dz – yes or no

- 125 Survey Respondents
 - 76 thoracic limb amputees
 - 49 pelvic limb amputees



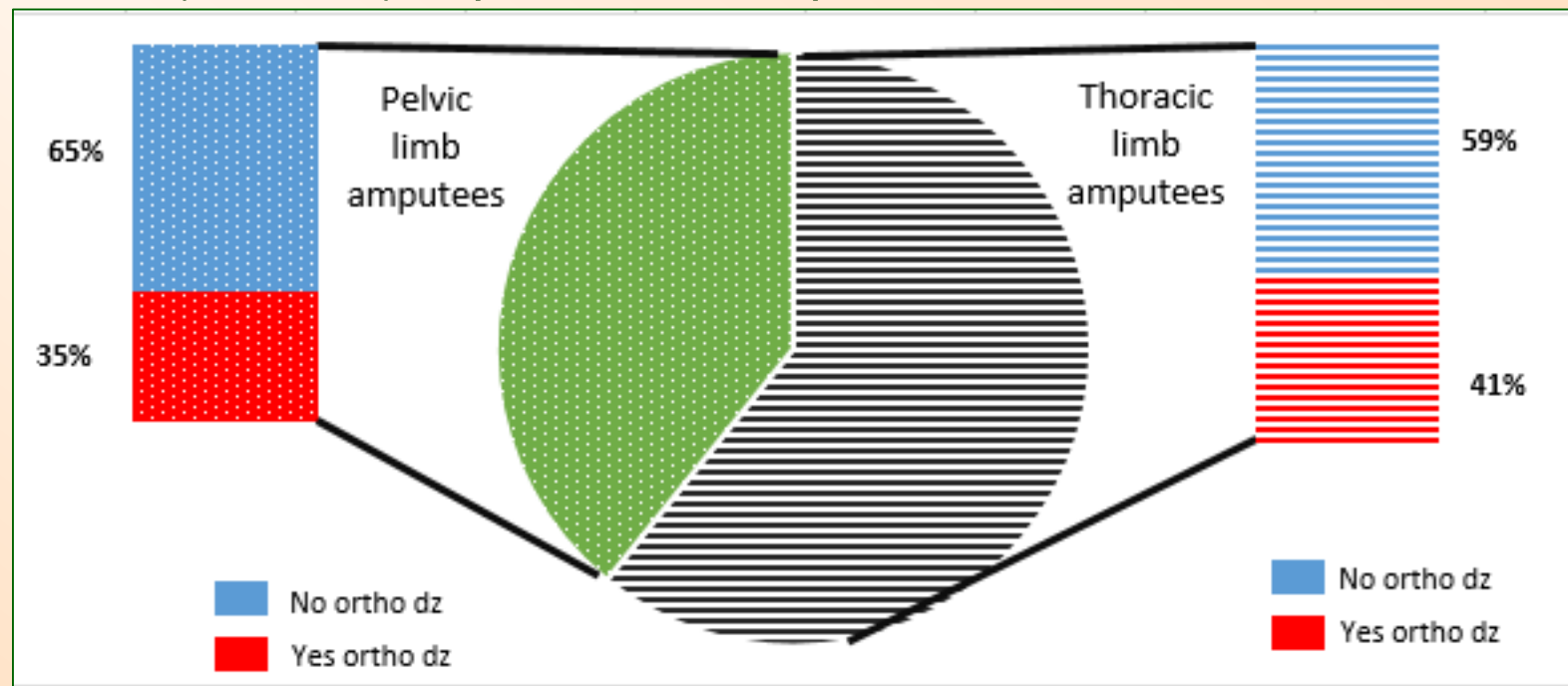
- **38%** (n=48/125 respondents) **YES** subsequent ortho dz**
- **62%** (n=77/125 respondents) **NO** subsequent ortho dz **

****interpret with caution → bias in phrasing of question to gather respondents**



Results: Ortho dz – yes or no

- **YES** subsequent ortho dz
 - 41% (n=31/76) of thoracic limb amputees
 - 35% (n=17/49) of pelvic limb amputees



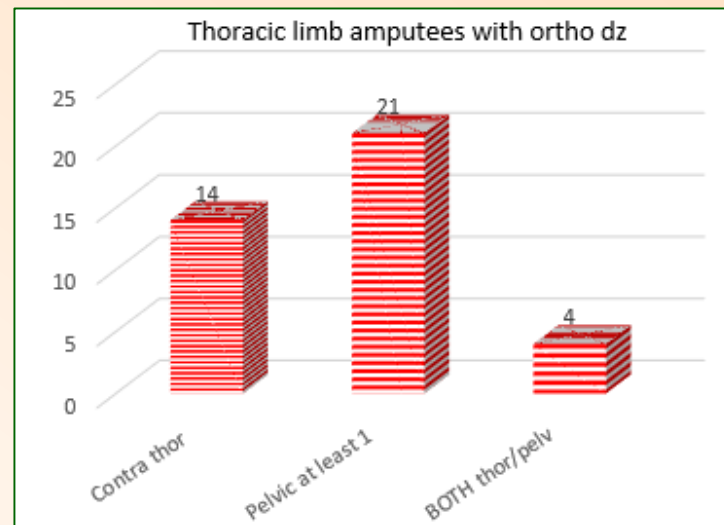
- **NO** subsequent ortho dz
 - 59% (n=45/76) of thoracic limb amputees
 - 65% (n=32/49) of pelvic limb amputees



Results: Ortho dz variables

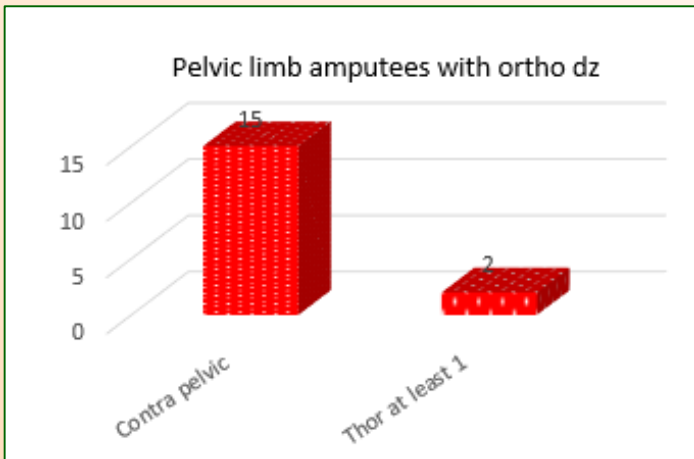
Orthopedic dz: **avg 21 months** (+/- 28 mo's; range **1-98 months**) post-amputation – same for both sx and non-sx

- Thoracic limb amputees w (*REPORTED) ortho dz
 - In contralateral thoracic limb: 45%
 - at least 1 pelvic limb: 68% **
 - BOTH thoracic and pelvic: 13%



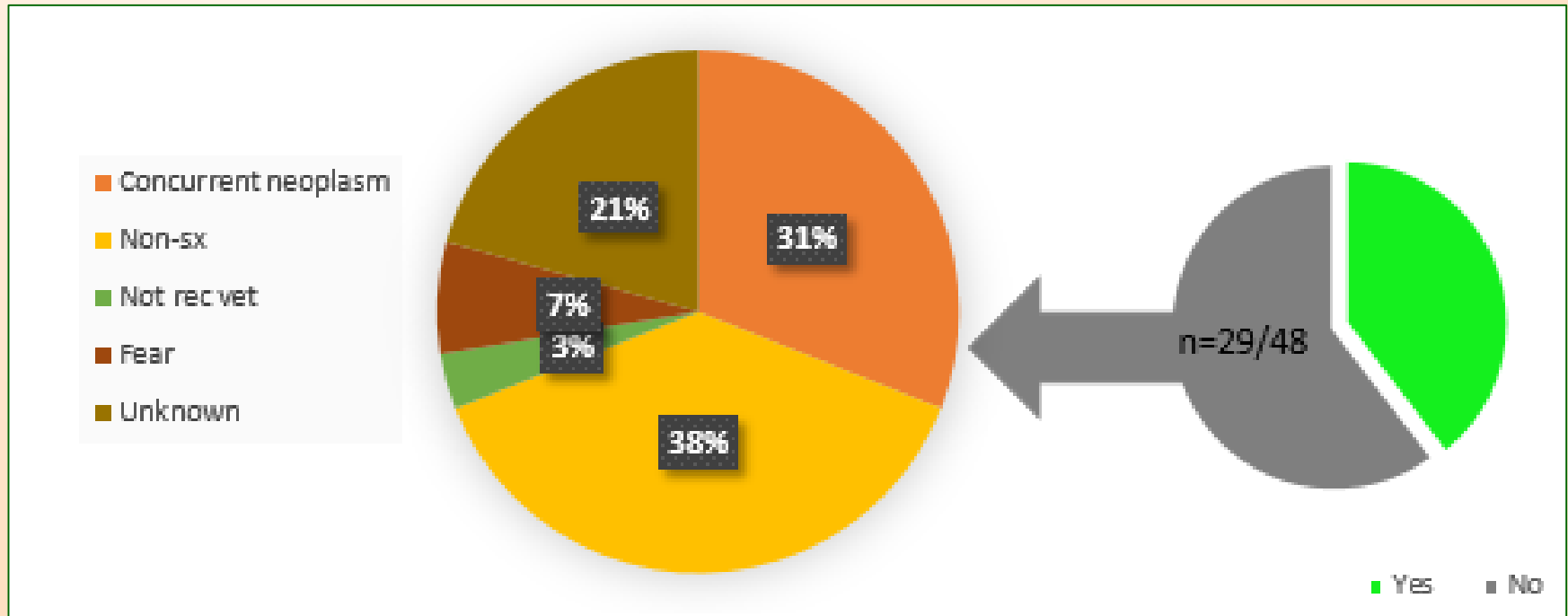
- Pelvic limb amputees w ortho dz:
 - In contralateral pelvic limb: 88%
 - in at least 1 thoracic limb: 12%

*** Could be partly d/t more catastrophic dz occurring in pelvic limb – hip luxation, CCL rupture, etc – vs thoracic limb – osteoarthritis, DJD, elbow dz, rare luxations – not as compromising*



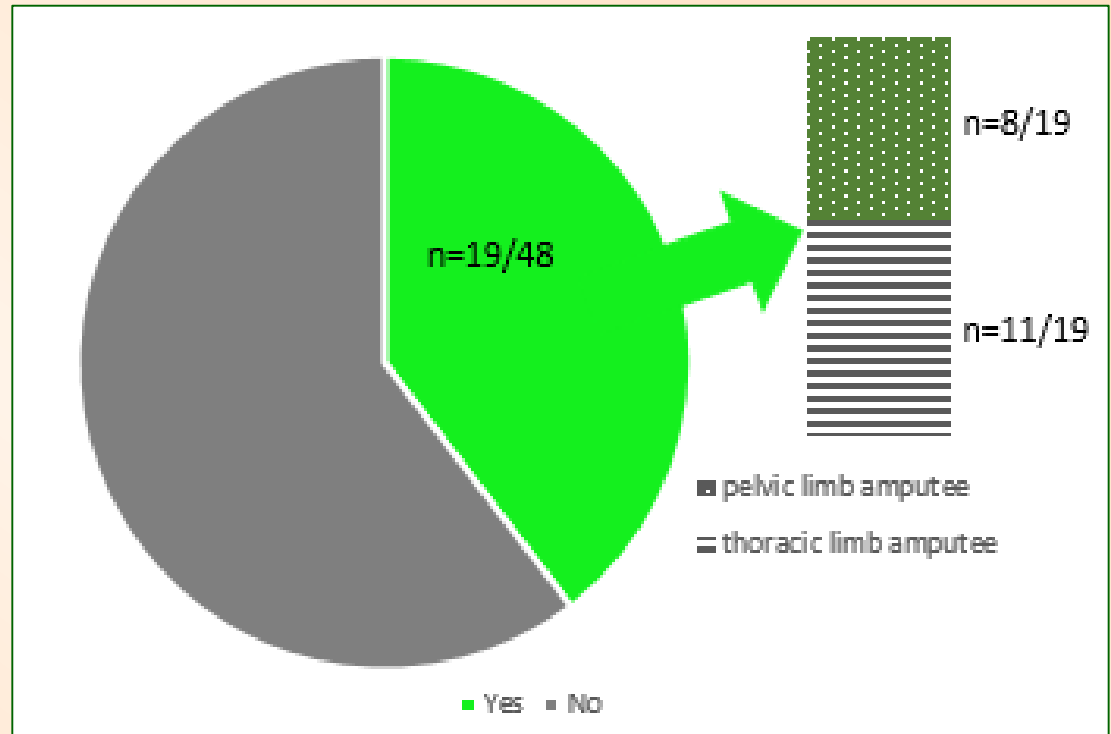
Results: Surgery NOT selected

- 60% (n=29/48) did not select surgery due to:
 - Concurrent neoplastic process (n=9)
 - Arthritis/non-surgical or not recommended front limb dz (elbow/shoulder) (n=11)
- Vet/surgeon did not recommend (n=1)
- Owner choice/risk/fear (n=2)
- Unknown (n=6)



Results: Ortho dz and surgery

- Those selecting surgery for ortho dz: 40% (n=19/48) – **all for PELVIC limb disorders** **

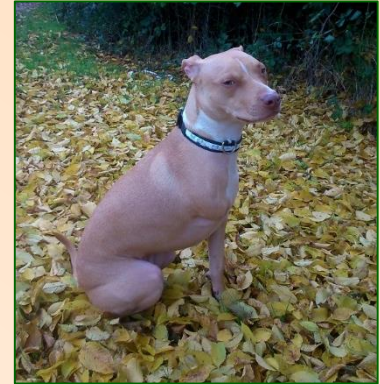


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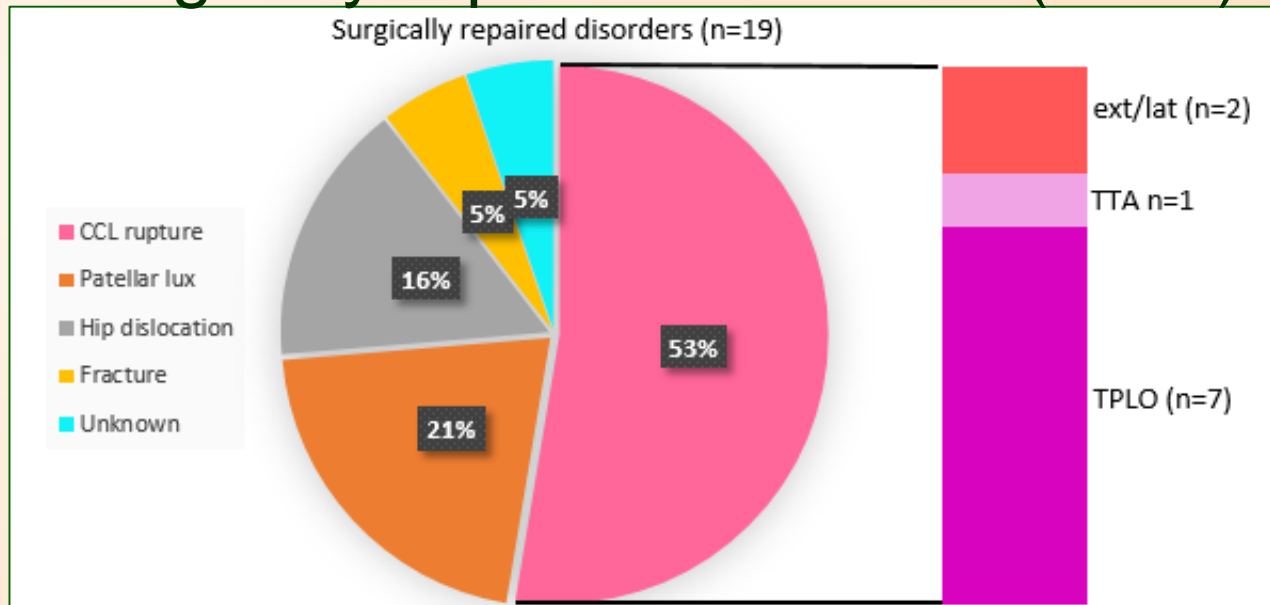
Results: Ortho dz and surgery

- Breeds (surgery):
 - Great Pyrenees, Labrador mix, Chow mix, 4 bully/terrier breeds, boxer, min pin, 2 toy poodles
- Reasons for original amputation (surgery):
 - Hit by car, unknown cause – young/when puppy, suspect osteomyelitis, suspect soft tissue sarcoma



Results: Ortho dz and surgery

Surgically repaired disorders (n=19)



- **10 CCL ruptures**
 - TPLO (n=7/10)
 - 1 bilateral
 - TTA (n=1/10)
 - Lateral/extracap (n=2/10)
- **3 hip dislocations**
 - THR (n=1/3)
 - FHO (n=2/3)
 - 1 bilateral
- **4 patellar luxations**
 - 1 fracture, 1 unknown



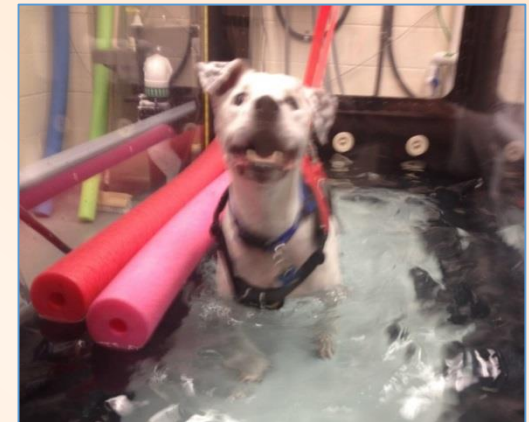
Results: Sx Outcome per owner

- Follow-up correspondence with 12
 - 92% (n=11/12) very pleased with surgery and would recommend
 - 1 dissatisfied – multiple surgeries



Results: Sx Outcome per records

- 8 records obtained thus far
 - **Post-op rehab**
 - 2 complications from surgery
 - Pelvic: Hip lux surgeries x 3 → THR → good
 - Thoracic: CCL rupture (80 lb dog) → lateral suture stabilization / imbrication → not using → severe hip dysplasia
- 6 others recovered well post-op rechecks



Results: Ortho dz and surgery

- 4 (36%; n=4/11) thoracic limb amputees with pelvic limb surgery **ALSO LATER** developed ortho dz in contralateral **thoracic** limb
- **None** of pelvic limb amputees with pelvic limb surgery also developed reported ortho dz in **thoracic** limb



Conclusions

- Amputees might get subsequent orthopedic disease (~40% of our survey – PRELIMINARY RESULTS)
 - ** does **NOT** imply 40% of amputees get ortho dz – skewed questionnaire
 - Occurs **whether thoracic or pelvic limb** amputated (41%, 35%), with similar frequency
- Occurs average of **21 months after amputation** (LARGE range: **1-98 months**)
 - Pelvic limb amputees report contralateral pelvic limb disease
 - Thoracic limb amputees REPORTED more pelvic limb disease vs contralateral thoracic limb disease ((HOWEVER - pelvic limb disease is likely more catastrophic, thus reportable, versus thoracic limb disease which might not warrant a notable diagnosis per respondents/owners)
- Surgery was selected ONLY for pelvic limb disorders (n=17), most **CCL ruptures** (n=10), and most of those repaired by **TPLO** (n=7)
 - **Recovery overall good / recommend surgery** - per owner report.
 - Medical record reports pending (**no complications n=6/8**)
- Surgery was not selected due primarily to: concurrent neoplastic process/poor overall px, non-surgical conditions



THANKS!

Tripawds (Rene Agredano) All of the survey respondents!!



It's better to hop on three
legs than to limp on four.

tripawds®



QUESTIONS?

